

Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

1. (Currently Amended) A computer-based method for representing ~~the~~ latent semantic content of a plurality of documents, each document containing a plurality of terms, the method comprising:

deriving at least one n-tuple term from the plurality of terms;

forming a two-dimensional matrix,

each matrix column c corresponding to a document,

each matrix row r corresponding to a term occurring in at least one document corresponding to a matrix column,

each matrix element (r, c) related to ~~[[the]]~~ a number of occurrences of the term corresponding to the row r in the document corresponding to column c,

at least one matrix element related to the number of occurrences of ~~one~~ the at least one n-tuple term occurring in the at least one document, and

performing singular value decomposition and dimensionality reduction on the matrix to form a latent semantic indexed vector space and storing the latent semantic indexed vector space in an electronic form accessible to a user.

2. (Original) The invention as recited in claim 1 further comprising:

identifying an occurrence threshold;

wherein n-tuples that appear less times in the document collection than the occurrence threshold are not included as elements of the matrix.

3. (Previously presented) The invention as recited in claim 2 wherein the occurrence threshold is two.

4. (Original) The invention as recited in claim 1 wherein deriving at least one n-tuple term further comprises:

creating the at least one n-tuple term from n consecutive verbatim terms.

5. (Currently amended) A computer-based method for determining conceptual similarity between a subject document and at least one of a plurality of reference documents, each reference document containing a plurality of terms, the method comprising:

deriving at least one n-tuple term from the plurality of terms; [[,]]

forming a plurality of two-dimensional matrices wherein, for each matrix:

each matrix column c corresponds to a document, wherein one column corresponding corresponds to the subject document and the remaining columns correspond to the reference documents;

each matrix row r corresponds to a term occurring in at least one of the subject document or the reference documents ~~corresponding to a matrix column,~~

each matrix element (r, c) represents [[the]] a number of occurrences of the term corresponding to r in the document corresponding to c;

performing singular value decomposition and dimensionality reduction on [[a]]
the plurality of formed matrices, to form a plurality of latent semantic indexed vector
spaces,

the plurality of latent semantic indexed vector spaces including at least one space
formed from a matrix including at least one element corresponding to the number of
occurrences of at least one n-tuple term in at least one document,

determining at least one composite similarity measure between the subject
document and the at least one reference document as a function of a weighted similarity
measure of the subject document to the at least one reference document in each of [[a]]
the plurality of indexed vector spaces and storing the at least one composite similarity
measure in an electronic form accessible to a user.

6. (Currently amended) The method as recited in claim 5 wherein determining the
at least one composite similarity measure comprises weighing [[the]] similarity measures
from vector spaces comprising greater numbers of n-tuples ~~are weighted~~ greater than
similarity measures from vector spaces comprising lesser numbers of n-tuples.

7. (Withdrawn) A method for representing a query document, the query
document containing verbatim terms, the query document intended for querying a
collection of reference documents via a latent semantic indexed representation of the
reference collection; the method comprising:

identifying verbatim entities;
stemming identified entities;

generalizing stemmed entities; and
supplementing verbatim entities with corresponding generalized entities.

8. (Withdrawn) A method for representing a query document, the query document containing verbatim terms, the query document intended for querying a collection of reference documents via a latent semantic indexed representation of the reference collection; the method comprising:

identifying verbatim entities;
stemming identified entities;
generalizing stemmed entities; and
replacing verbatim entities with corresponding generalized entities.

9. (Withdrawn) The method as recited in claim 8 wherein verbatim entities comprise ordered terms between stop words.

10. (Withdrawn) The method as recited in claim 8 wherein generalizing entities further comprises alphabetically ordering stemmed entities as an aid to generalization.

11. (Withdrawn) The method as recited in claim 8 wherein generalizing entities further comprises ordering stemmed entities as a function of the frequency of occurrence of verbatim entities.

12. (Withdrawn) The method as recited in claim 8 wherein generalized entities are identified with human feedback.

13. (Withdrawn) The method as recited in claim 8 wherein generalized entities are identified by automated process.

14. (Currently amended) A computer-based method for characterizing the results of a query, ~~into a latent semantic indexed document space, the query comprising at least one term, the results comprising a set of document identities; the method comprising:~~

automatically identifying n-tuples included in a collection of documents based on an analysis of the collection of documents, wherein each document in the collection of documents contains a plurality of terms;

forming a latent semantic indexed vector space based on (i) the documents in the collection of documents, (ii) the plurality of terms, and (iii) the automatically identified n-tuples;

querying the latent semantic indexed vector space with a query having at least one term;

ranking results of the querying step as a function of at least [[the]] a frequency of occurrence of the at least one term, thereby generating a characterization of the results;
and

storing the characterization in an electronic form accessible to a user.

15. (Original) The method as recited in claim 14 wherein at least one term used in ranking is a query term.

16. (Original) The method as recited in claim 15 wherein the at least one query term used in ranking is a generalized entity.

17. (Original) The method as recited in claim 14 wherein the at least one term used in ranking is a generalized entity.

18. (Withdrawn) A method for determining conceptual similarity between a query document and at least one of a plurality of reference documents, each document comprising a plurality of verbatim terms, the reference documents indexed into a latent semantic index space, the method comprising:

identifying verbatim entities;

stemming identified entities;

generalizing stemmed entities;

replacing at least one verbatim entity with the corresponding generalized entity to form a generalized query;

identifying a set of reference documents based on closeness, within the latent semantic indexed space, between the generalized query and each reference document;
and

ranking a subset of closest identified documents as a function of at least the frequency of occurrence of at least one term.

19. (Withdrawn) The method as recited in claim 18 wherein at least one term used in ranking is a query term.

20. (Withdrawn) The method as recited in claim 19 wherein the at least one query term used in ranking is a generalized entity.

21. (Withdrawn) The method as recited in claim 18 wherein the at least one term used in ranking is a generalized entity.

22. (Currently amended) A computer-based method for representing ~~the~~ latent semantic content of a plurality of documents, each document containing a plurality of verbatim terms, the method comprising:

- deriving at least one expansion phrase from the verbatim terms,
- each expansion phrase comprising terms;
- replacing at least one occurrence of a verbatim term having an expansion phrase with the expansion phrase corresponding to that verbatim term;
- forming a two-dimensional matrix,
- each matrix column *c* corresponding to a document;
- each matrix row *r* corresponding to a term;
- each matrix element (*r*, *c*) representing ~~[[the]]~~ a number of occurrences of the term corresponding to *r* in the document corresponding to *c*;

at least one matrix element corresponding to the number of occurrences of ~~one~~ at least one term occurring in the at least one expansion phrase, and

performing singular value decomposition and dimensionality reduction on the matrix to form a latent semantic indexed vector space and storing the latent semantic indexed vector space in an electronic form accessible to a user.

23. (Currently amended) A computer-based method for representing ~~the~~ latent semantic content of a plurality of documents, each document containing a plurality of terms, the method comprising:

identifying at least one idiom among the documents,

each idiom containing at least one idiom term;

forming a two-dimensional matrix,

each matrix column corresponding to a document;

each matrix row corresponding to a term occurring in at least one document represented by a row;

each matrix element representing ~~[[the]]~~ a number of occurrences of the term corresponding to the element's row in the document corresponding to element's column;

at least one occurrence of at least one idiom term being excluded from the number of occurrences corresponding to that term in the matrix,

performing singular value decomposition and dimensionality reduction on the matrix to form a reduced matrix and storing the reduced matrix in an electronic form accessible to a user.

24. (Currently amended) A computer-based method for representing ~~the~~ latent semantic content of a plurality of documents, each document containing a plurality of terms, the method comprising:

identifying at least one idiom among the documents,

each idiom containing at least one idiom term;

replacing at least one identified idiom with a corresponding idiom elaboration,

each elaboration comprising at least one elaboration term,

forming a two-dimensional matrix,

each matrix column corresponding to a document;

each matrix row corresponding to a term;

each matrix element representing ~~[[the]]~~ a number of occurrences of the term corresponding to the element's row in the document corresponding to element's column,

at least one matrix element corresponding to the number of occurrences of an elaboration term in a document corresponding to a matrix column;

performing singular value decomposition and dimensionality reduction on the matrix to form a reduced matrix and storing the reduced matrix in an electronic form accessible to a user.